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To: Chip Humphrey/R10/USEPA/US@EPA
Subject: selection of PCB congeners for fate and transport modeling
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Here's a cursory overview of the data we have for the PCB congeners we discussed on today's call. 153 and 180 look like good choices. 118 is problematic because a lot of the results are for 118 and 106 combined-- it might be hard to pull those apart. 77 and 126 have pretty high detection frequencies but are present at relatively low concentrations. It would be good to see LWG do an analysis along these lines but with a little more rigor than I have time to do at this point. Not sure who else at EPA or DEQ would want to see this-- feel free to forward if you think it's appropriate.

PCB congeners 77, 118, 126, 153, 169, 180 Data Overview from RI Appendix D summaries

In surface sediment, PCB77 had 95% detection (252/264 samples). 118 was analyzed at fewer sites and had lower detection rate (37/89=41%). 126 had 249/264 detections = 94%. 153 had 291/319 = 91% 169 had low detection (48/264 = 18%) 180 had 319/292 = 91% (appendix D1.2-1 table).

In subsurface sediment, PCB77 had 83% detection (124/149 samples). 118 was not analyzed (only in conjunction with 106). 126 had 79% detection. 153 had 91% detection. 169 had only 16% detection. 180 had 91% detection (appendix D1.2-2 table)

Sediment traps measured PCB118 in combination with 106. Found all nondetects for PCB169. Congeners 77, 126, 153, and 180 were 100% detected (13/13). (Appendix D2.2 tables)

In surface water for all PCB congeners and homologs there were 19 samples analyzed—make sure that the ones we select had 19 detections if possible. PCB77 did, PCB118 did, PCB126 had much lower detection rates. PCB 169 also had only 1 detection. 153 and 180 weren't analyzed individually (were analyzed in combination with 168 and 193, respectively) (appendix D.3.2 table)

Transition Zone Water only tested for Aroclors and found all ND. (appendix D4)

Biota samples: fish tissue samples only have 4 results for PCBs: 77, 118, and 126 all were 100% detection; 169 was ¾. 153 and 180 weren't analyzed individually (were analyzed in combination with 168 and 193, respectively) (appendix D5.1-1 table)

Invertebrates only have 5 results for PCBs: 77 and 118 are 100% detection; 126 80%, 169 zero.

*PCB congeners 77, 118, 126, 153, 169, 180 Data Overview from Round 1,2,3 sediment data. All comments here apply to normal samples only—I excluded field reps and splits from consideration. *

**Round 1: 9 locations have results for sediment PCBs (congener-specific; does not include 77, 118, 126, or 169; 180 is analyzed in combination with 193 and 153 is analyzed in combination with 168). Surface only.

Round 2: 169 is nearly all ND in surface sediment; 126, 77, 153, and 180 are nearly all present (~106 records each). 118 is analyzed in combination with congener 106 and has essentially all detects, but may be difficult to use this data to model 118 alone. 6 core locations, again analyzing 118 in combination with 106. 169 results are all J qualified. 153 and 180 are present at much higher concentrations than 126 and 77 (about 2 orders of magnitude difference).

Round 3: 118 is again analyzed in combination with 106, 169 is mostly ND, 126 and 77 are mostly present though a lot of the 126's are J-qualified. 153 and 180 concentrations are again orders of magnitude higher than 77 and 126.

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